ANALYST:		VPDES NO		DATE	

Instrument _____

Parameter: Metals ICP-MS
Checklist
04/01

METHOD OF ANALYSIS

☐ EPA 200.8 Revision 5.4, 1994

		Y	N
1)	Is highest concentration of silver analyzed < 0.1 ppm? [1.7]		
2)	Are dissolved solids determined to be ≤ 0.2% w/v? NOTE: Higher levels of dissolved solids may create physical interferences by forming deposits on the extraction and skimmer cones. [4.1.4]		
3)	Are isobaric elemental interferences corrected by measuring signal from another isotope of the interfering element and subtracting appropriate signal ratio from isotope of interest? [4.1.1]		
	a) Is correction process included with reported data? [4.1.1]		
	b) Are chloride corrections made? [12.6]		
4)	Is a minimum of 3 replicates integrated for data acquisition? [4.1.5]		
5)	Is high purity grade argon (99.99%) used for analysis? [6.1.3]		
6)	Are high purity reagents currently being used? [7.1]		
7)	Is HCl used during the digestion of samples? NOTE: HCl is required for Sb and Ag. [11.2.3] (7.1)		
8)	Is Type I water being used for analysis? [7.2]		
9)	Are standards within expiration date? [Permit]		
10)	Is only Class A glassware used for the preparation of standards? {Permit}		
11)	Are internal standards being added to blanks, standards and samples? [7.5, 10.3]		
12)	Is 1% HNO_3 used for the calibration blank? [7.6.1]		
13)	Is 2% HNO_3 used for the rinse blank? [7.6.3]		
14)	Does the tuning solution contain 100 ppb of Be, Mg, Co, Pb and In? [7.7]		
15)	Is the Quality Control Sample (alternate source standard) -QCS - replaced quarterly? [7.8]		
16)	Is the concentration in the QCS ≤ 100ppb for most elements? Se < 500ppb and Hg ≤ 5ppb? [7.8]		
17)	Is the LFB spiked between 40 - 100 ppb, except for Se which should be 200 - 500 ppb? [7.9]		
18)	Is pH taken just prior to analysis? [8.1]		
19)	Are total metals samples unfiltered and preserved with HNO_3 to a pH of <2? If samples are not preserved in the field, after acidification in the lab, are they held for 16 hours before beginning digestion? [8.3]		
20)	Are samples for dissolved metals filtered through a 0.45µ membrane filter immediately after collection and preserved immediately after filtration with HNO_3 to a pH of <2? [8.2]		

		Y	N
21)	For dissolved metals, were the filtration apparatus and filter rinsed with 50-100 mLs of sample and the filtrate discarded prior to filtering the aliquot to be preserved as the dissolved metals sample? [8.2]		
22)	Has initial demonstration of performance been completed? [9.2]		
	a) Have linear calibration ranges been established for each element? [9.2.2]		
	b) Have method detection limits (MDL) been determined for each method and element? NOTE: MDLs must be determined annually and for each new analyst. [9.2.4]		
	c) Have quality control samples (QCS) - from different external source than standards - been analyzed with recovery of 90-110% of stated value or within the acceptance limits in Table 8? [9.2.3]		
23)	Are samples > 90% of linear calibration range diluted and reanalyzed? [9.2.2]		
24)	If LRB is $\geq$ 10% of sample or 2.2 X MDL, whichever is greater, are samples redigested? [9.3.1]		
25)	Is the LFB recovery $\pm$ 15%? [9.3.2]		
26)	Are the following QC samples analyzed? [9.3.4]		
	ICB?		
	ICV with recovery of $\pm$ 10%?		
	CCB/CCV every 10 samples and at end of run, with recovery of $\pm$ 15%?		
27)	Are 10% of samples spiked with recovery of $\pm$ 30%? [9.4.2, 9.4.3]		
28)	Is an absolute response range of 60-125% used for internal standards? [9.4.5]		
29)	Is tuning performed daily? [10.2]		
30)	Where are internal standards added? [10.3]		
31)	Are calibration standards prepared at least every two weeks? [7.4.1]		
32)	Is a rinse blank used to flush the system for at least one minute between samples? [11.4.6]		
33)	Are samples with undissolved solids > 1% digested as a solid? [11.2.2]		
34)	Is Class A glassware used to reach the final volume of sample after digestion? [11.2.6]		
35)	Are masses listed in Table 4 monitored in the same scan used for collection of data? [11.4.4]		

PROBLEMS: